

PRIOR ART PATTERN MATCHING

FIG. 1

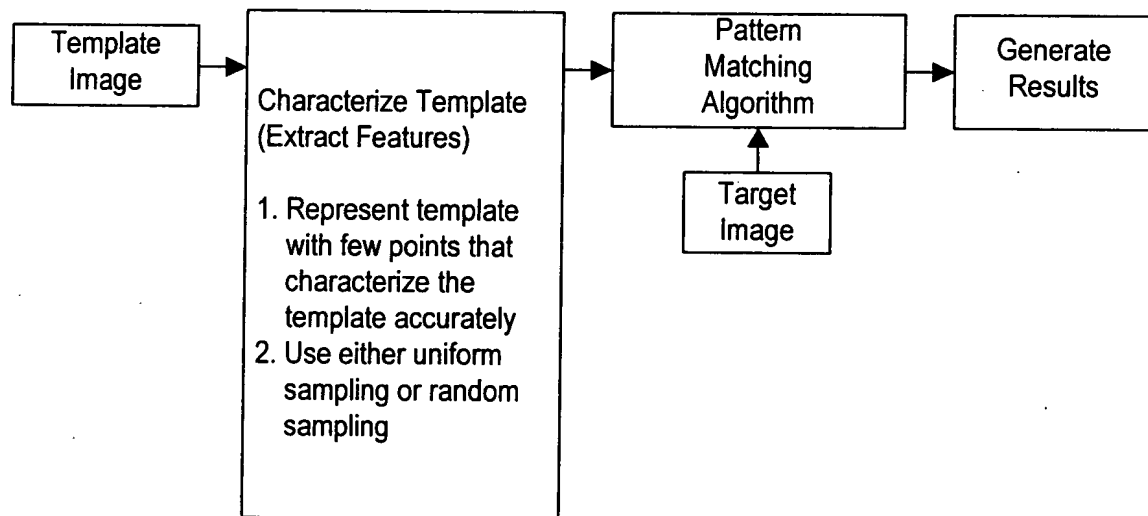
PRIOR ART PATTERN MATCHING WITH
CHARACTERIZATION OF THE TEMPLATE IMAGE

FIG. 2

09638271.081400

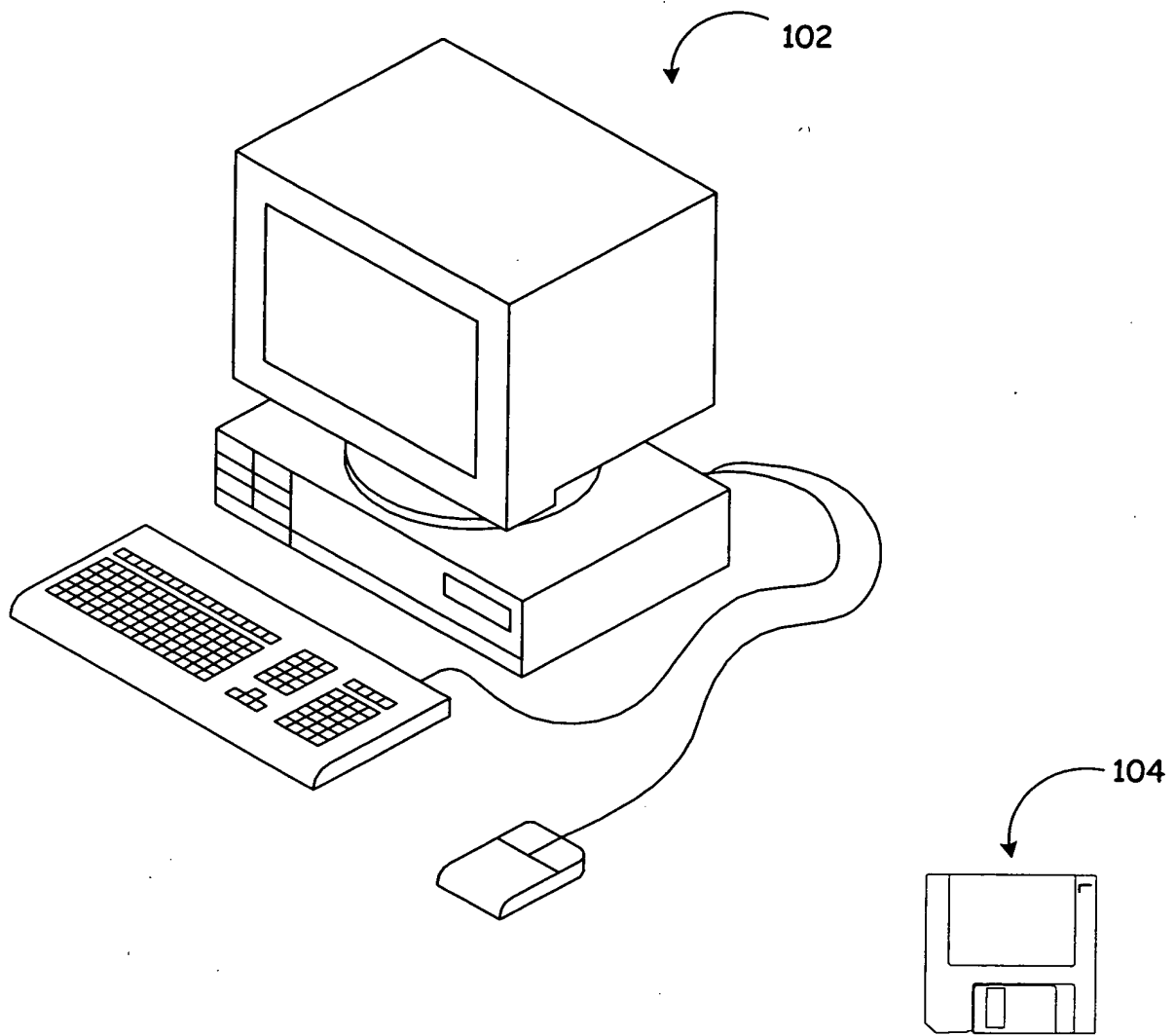


FIG. 3

096871-091400

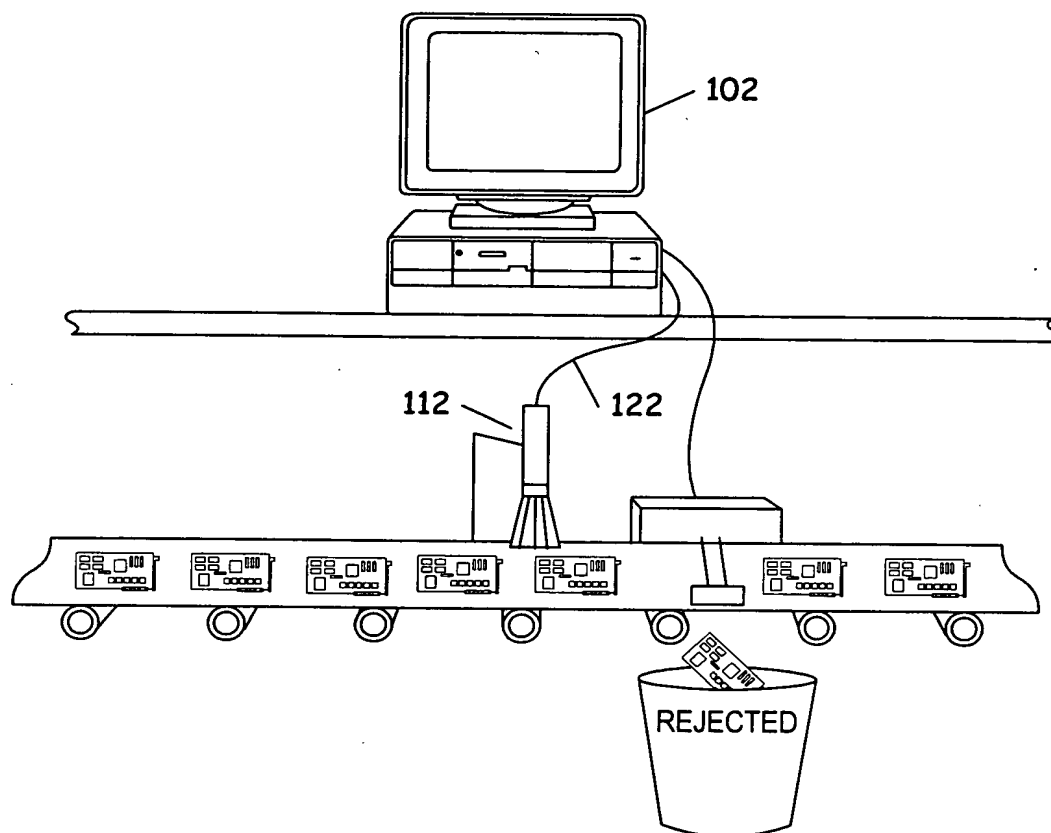


FIG. 4

09638271.081420

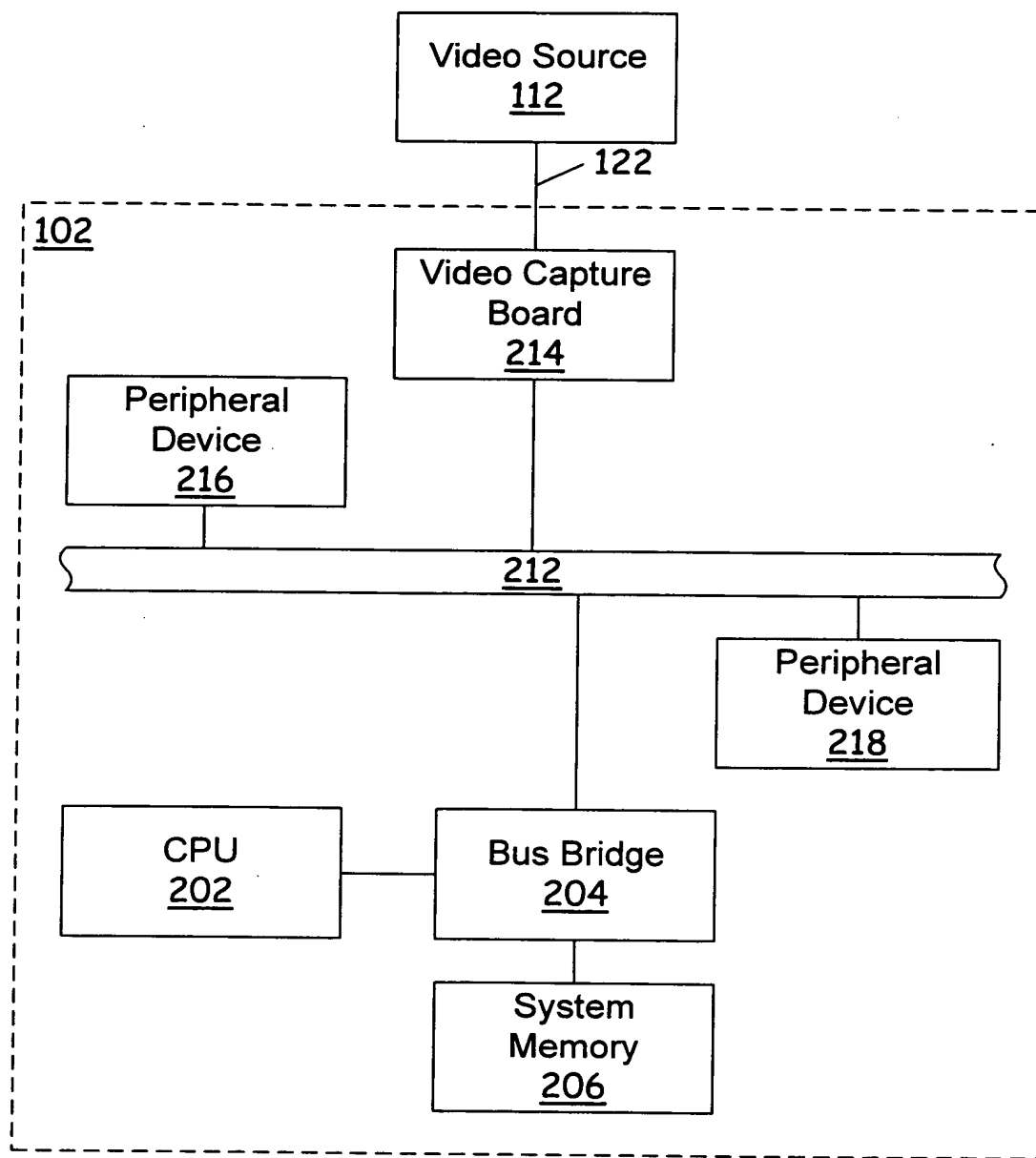


FIG. 5

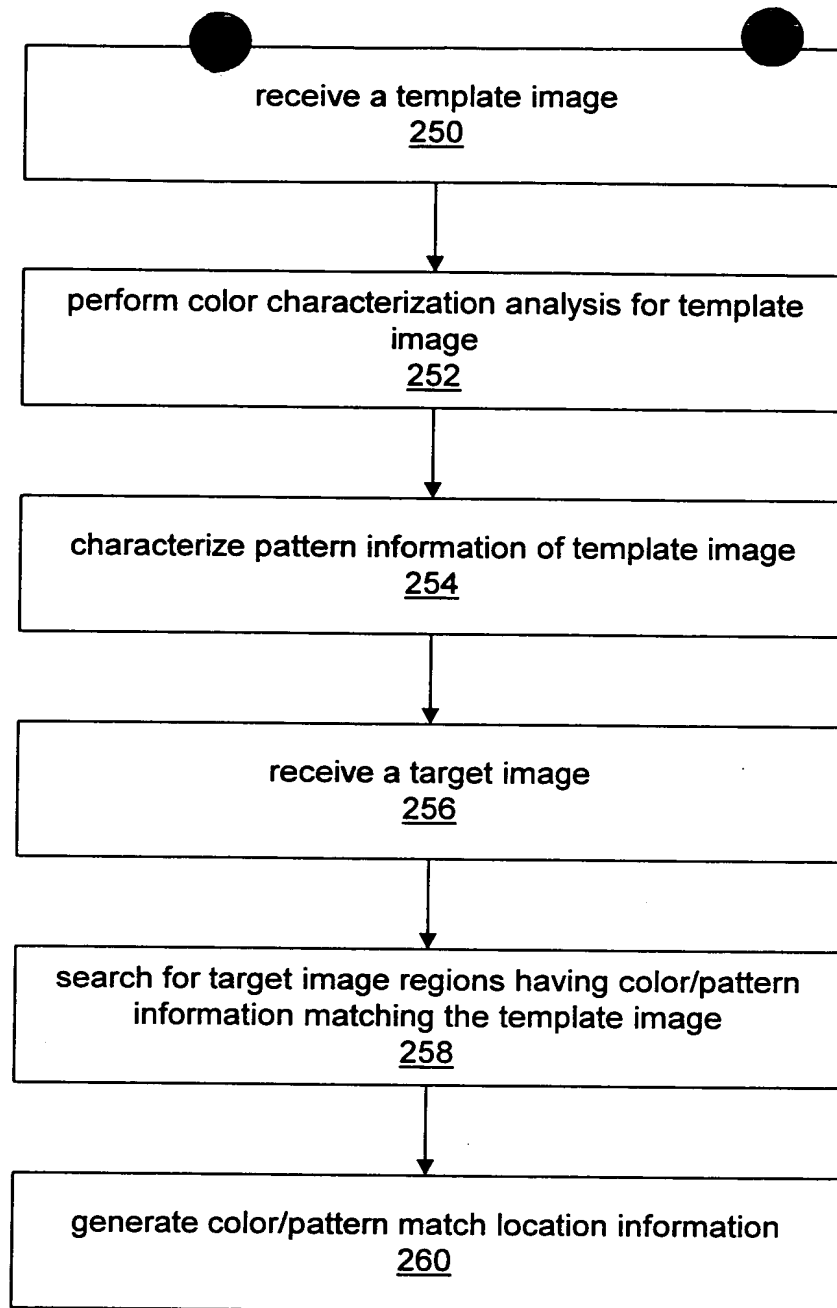


Figure 6

09638271.0814.00

09638271-081400

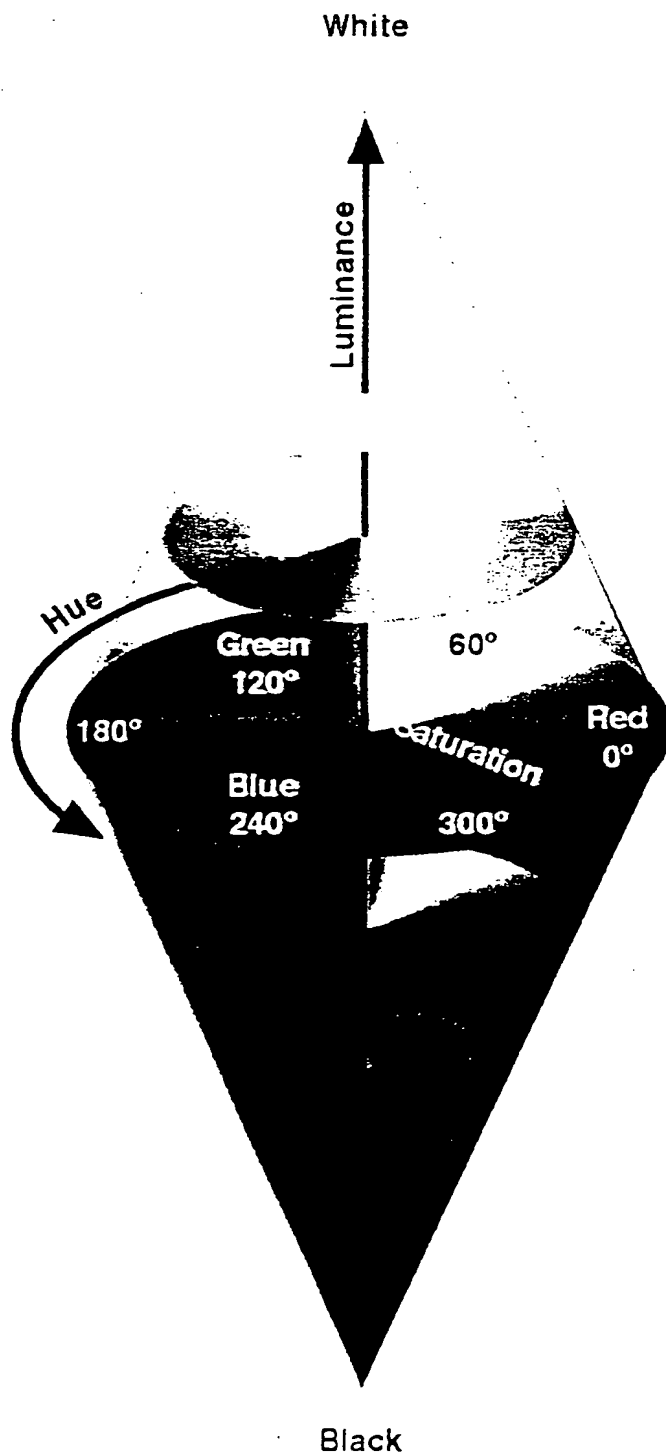


FIG. 4⁷ (need color print)

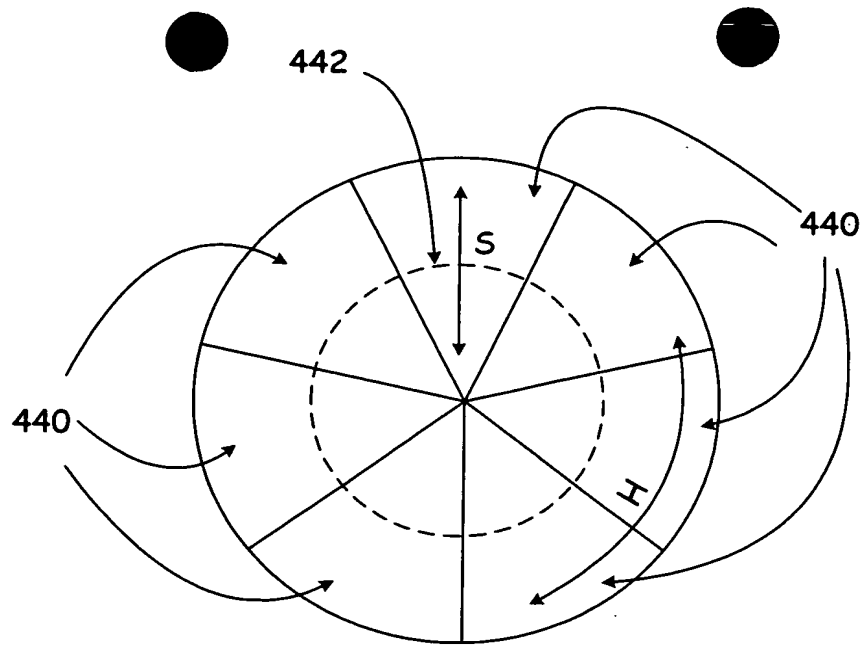


FIG. 8A

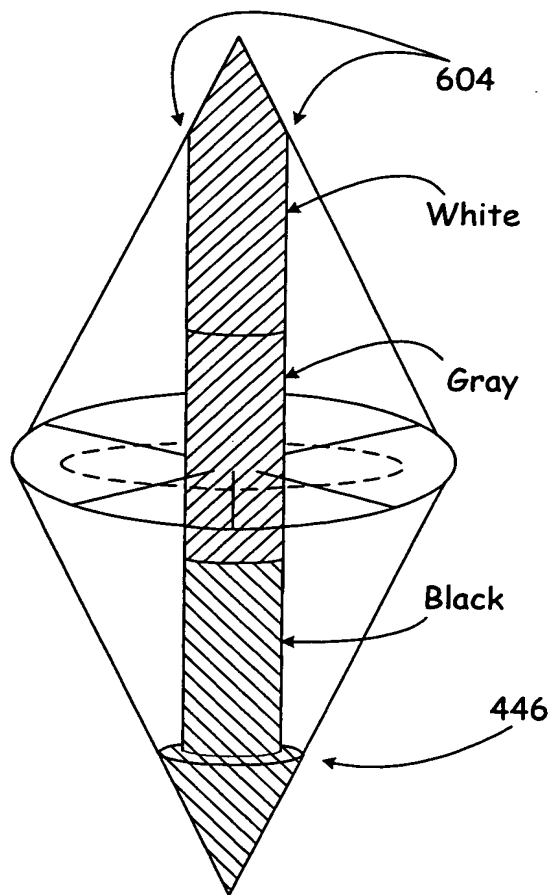


FIG. 8B

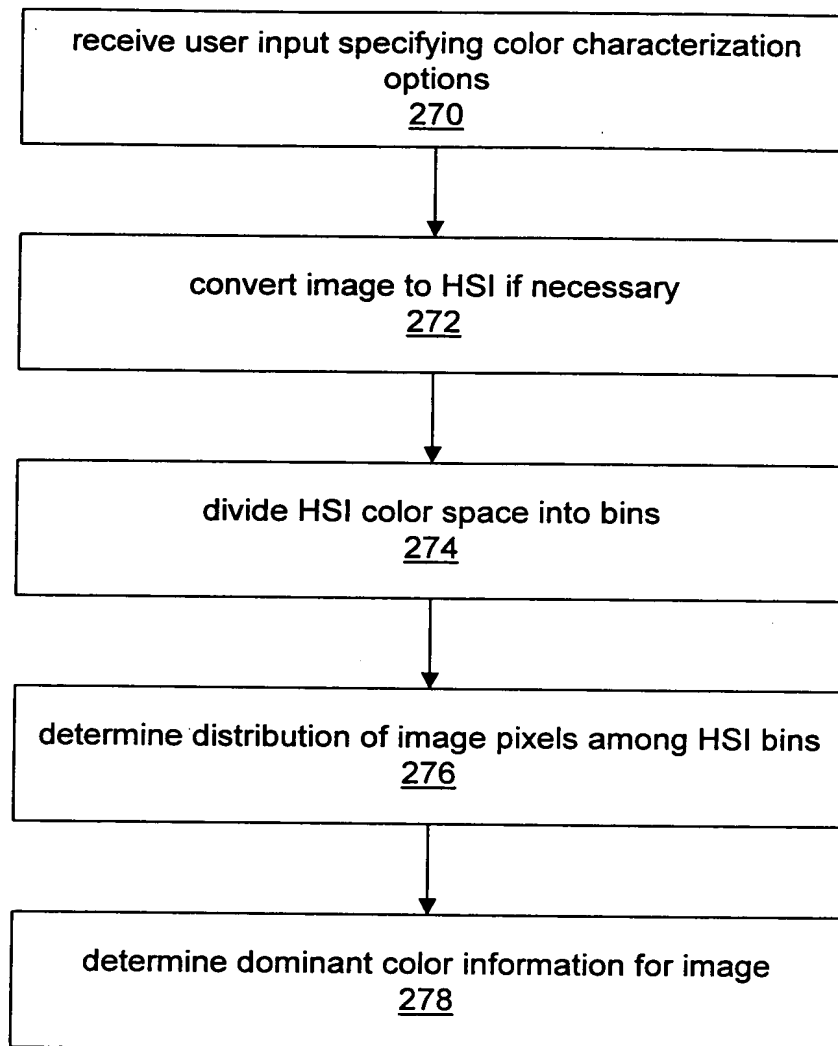


Figure 9

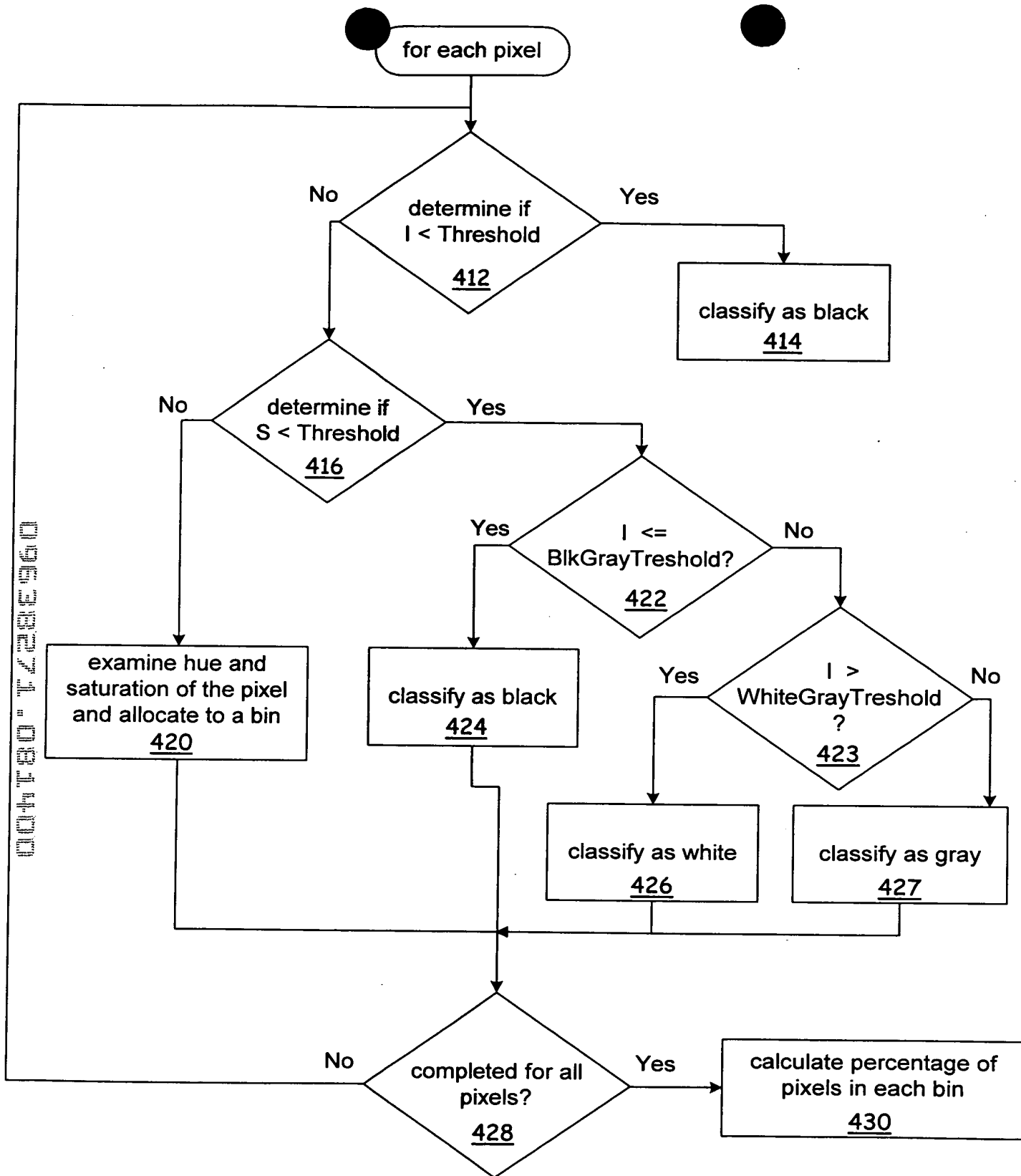


FIG. 10

Step 254

sample the template image to produce a plurality of
sample pixels
300

perform a local stability analysis for each of the plurality
of sample pixels
302

store the sample pixel values which have a requisite
stability within a pre-defined neighborhood
304

detect subsets of sample pixel values with varying
stability regions; compute step sizes
306

Figure 11

00638271.001400

Step 258

receive user input specifying search options
450

perform a first-pass search through the target image
based on color information to find initial color match
candidate regions
452

for each color match candidate region, perform a search
through a region surrounding the region based on
pattern information
454

generate final list of color & pattern match regions
456

Figure 12

09638271.031410

9 x 9 Pixel Step Size

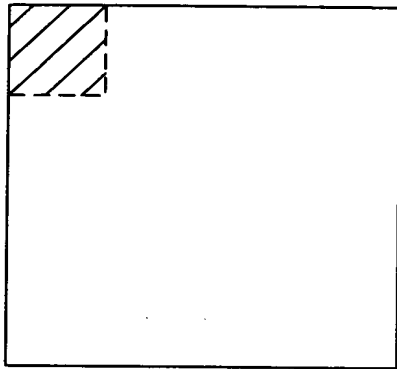


FIG. 13a

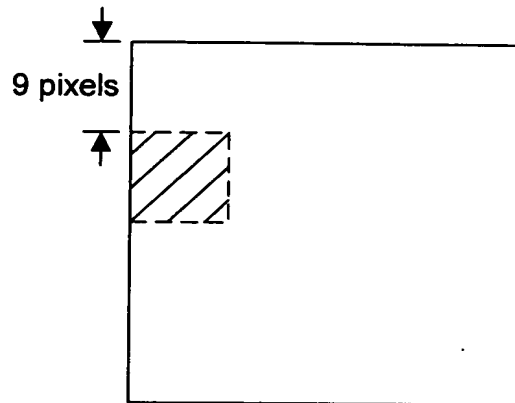


FIG. 13b

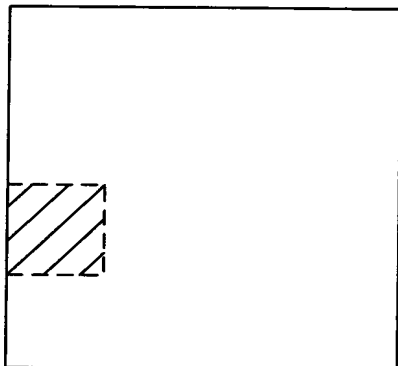


FIG. 13c

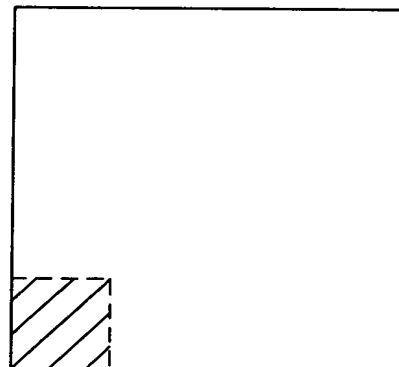


FIG. 13d

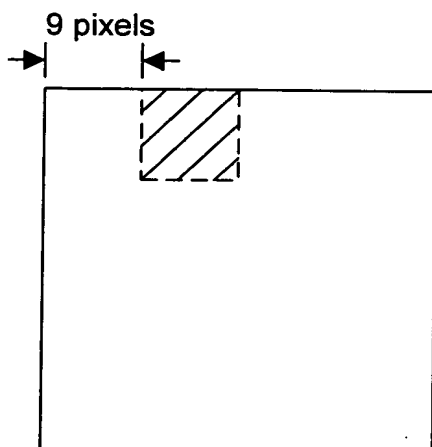


FIG. 13e

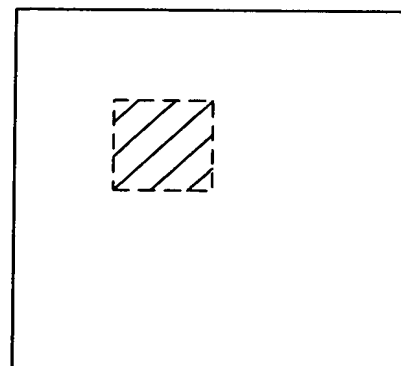


FIG. 13f

09638271-081400
004780" 7/28E960

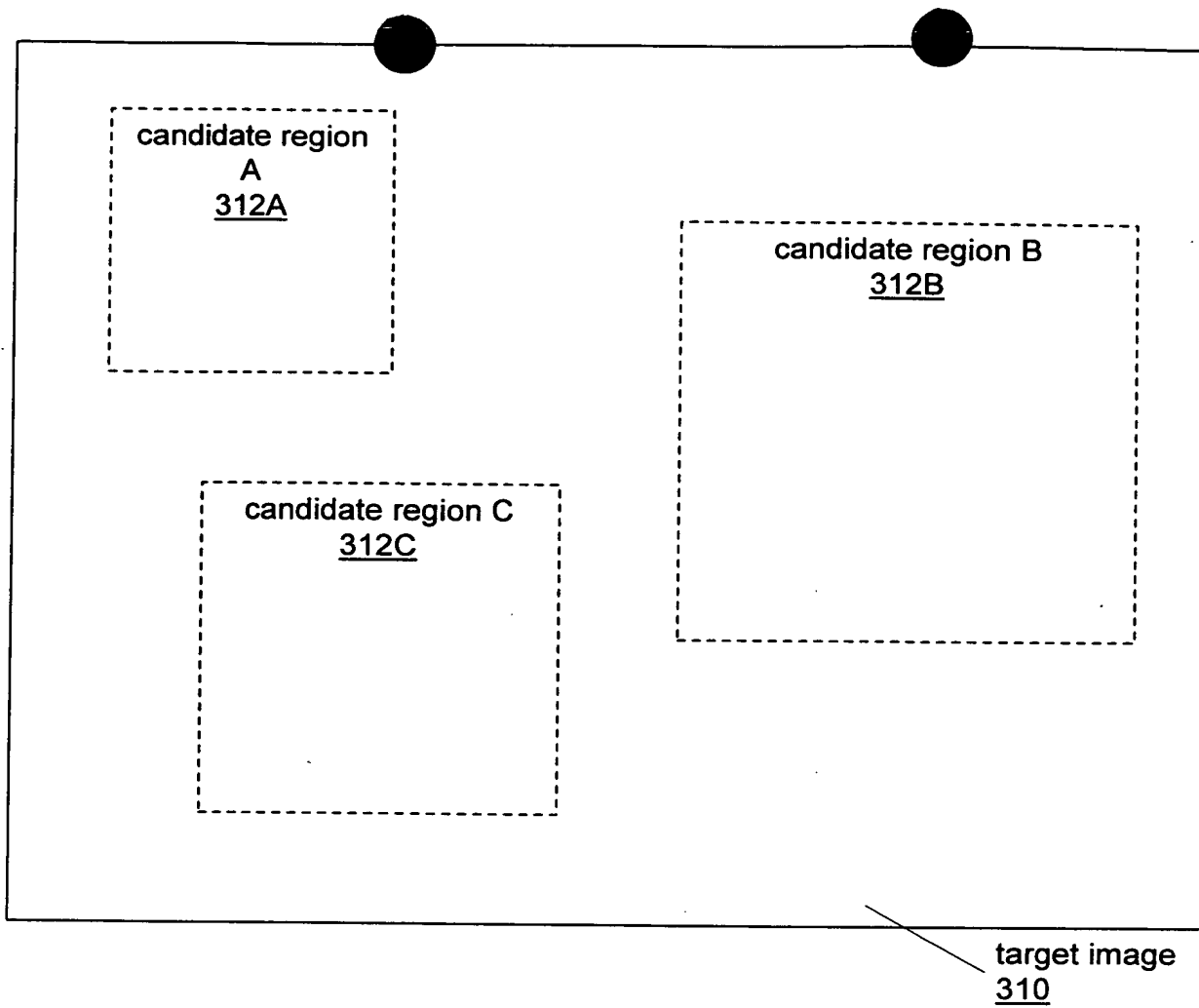


Figure 14

09638271-081400

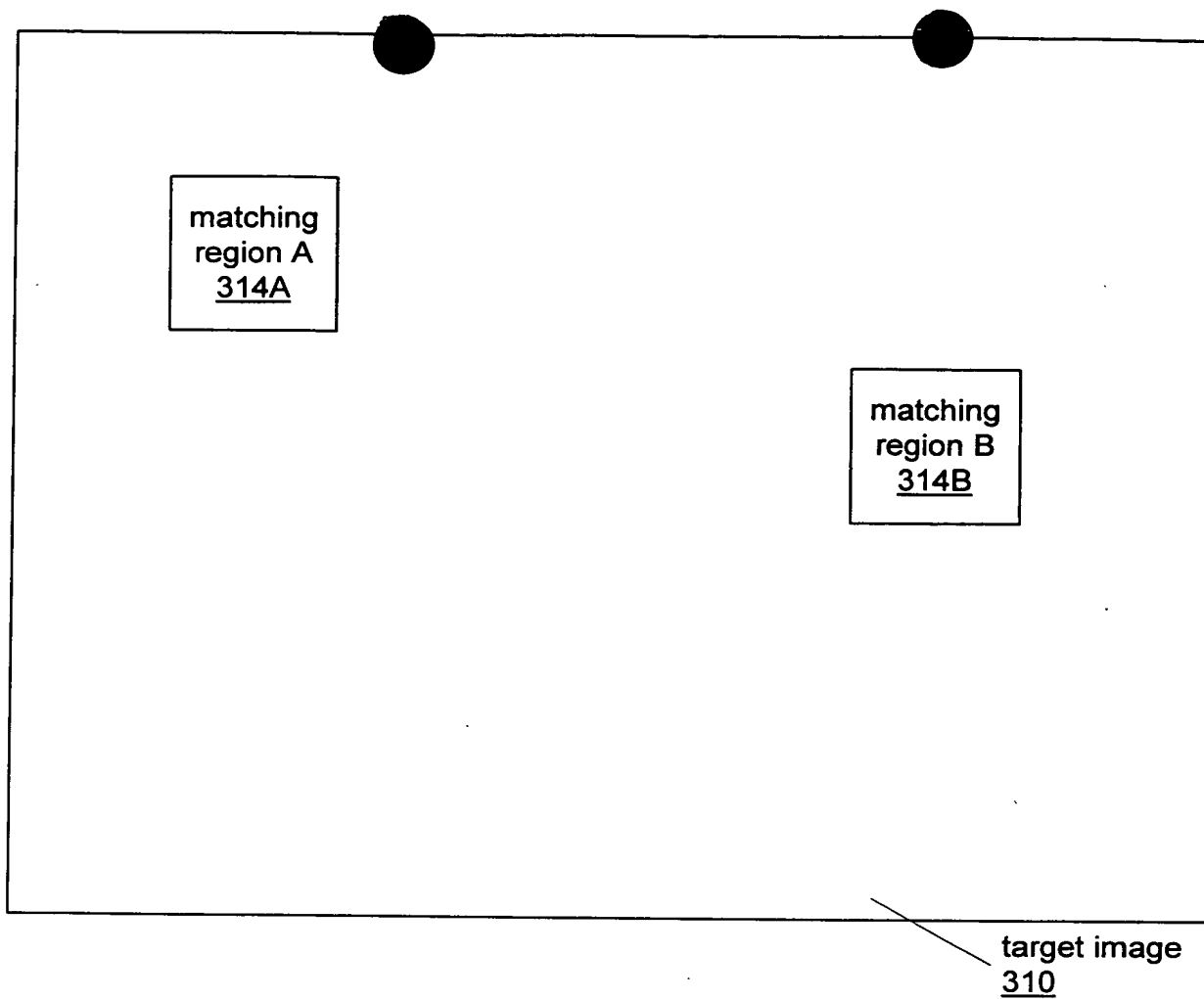


Figure 15

Step 452

determine search step size
470

determine sub-sampling size and type
472

for each sample region:

perform color characterization analysis for region
474

compute color spectrum difference between region and
template image
476

compute dominant color difference between region and
template image
478

add region to candidate list of color match regions if
color spectrum and dominant color differences are
sufficiently small
480

Figure 16

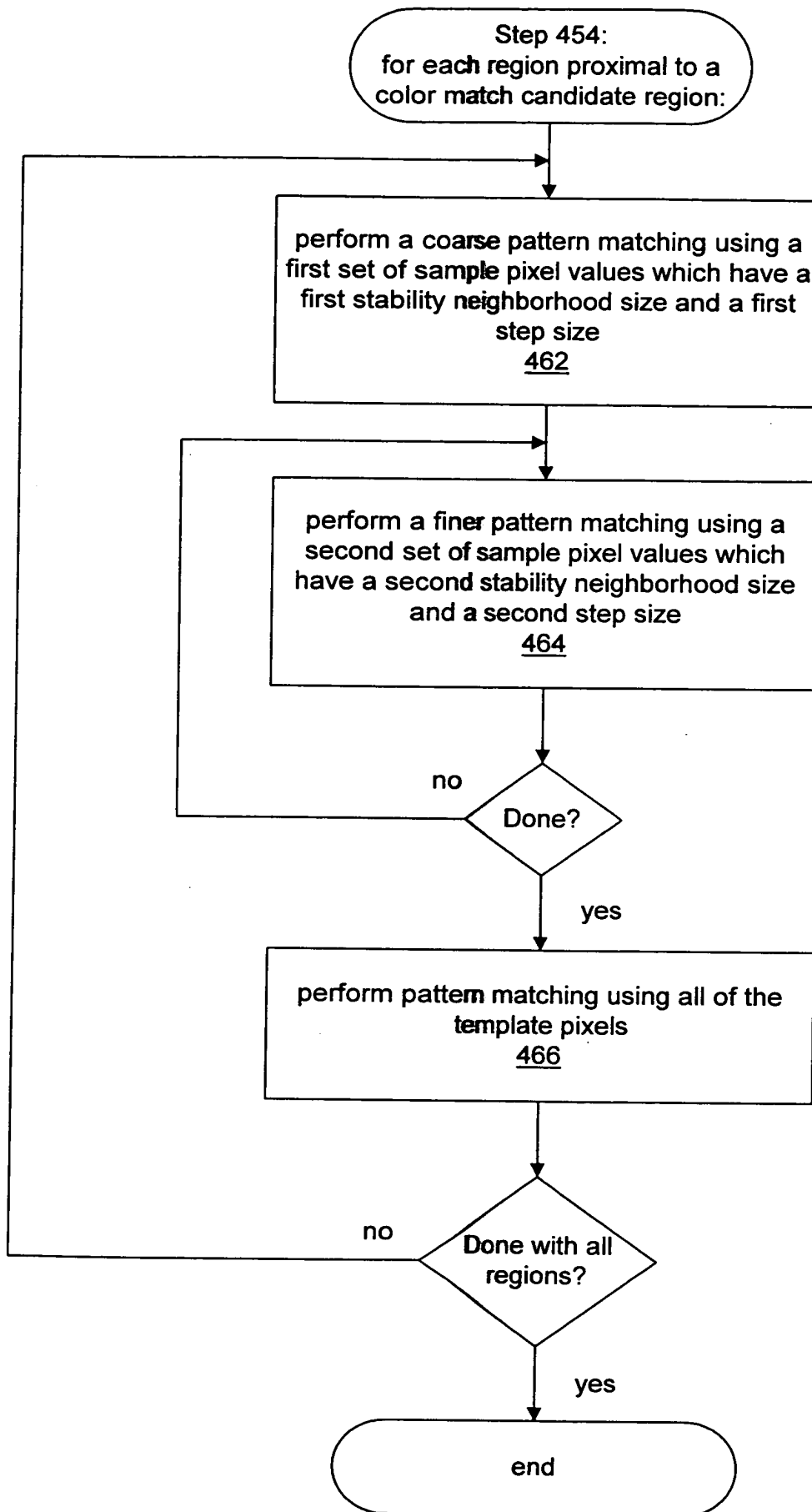


Figure 17

5 x 5 Pixel Step Size

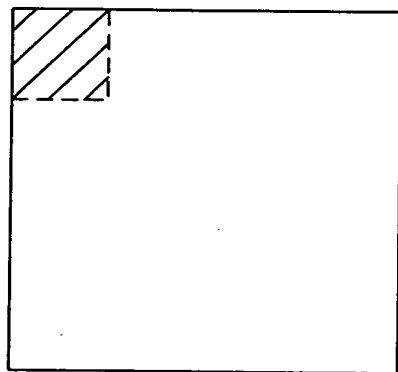


FIG. 18a

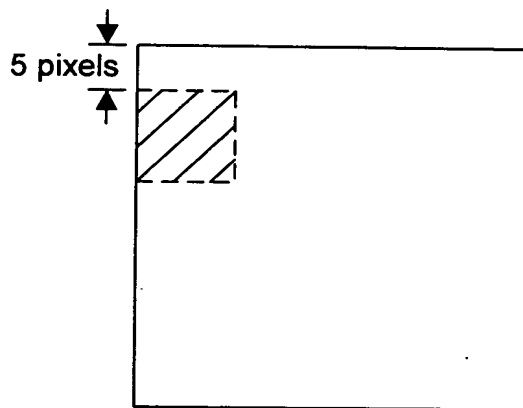


FIG. 18b

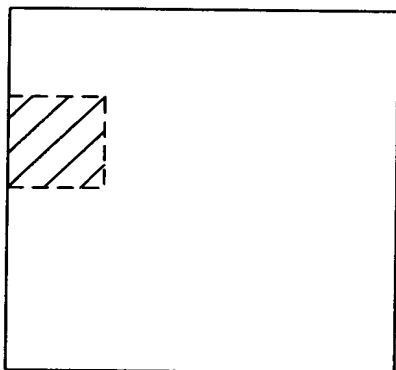


FIG. 18c

...

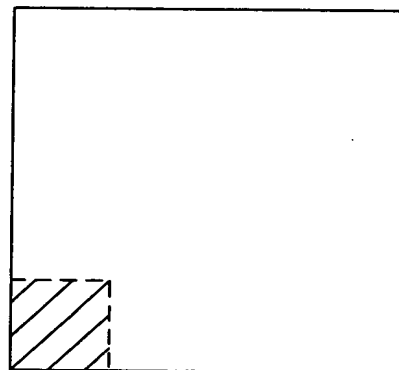


FIG. 18d

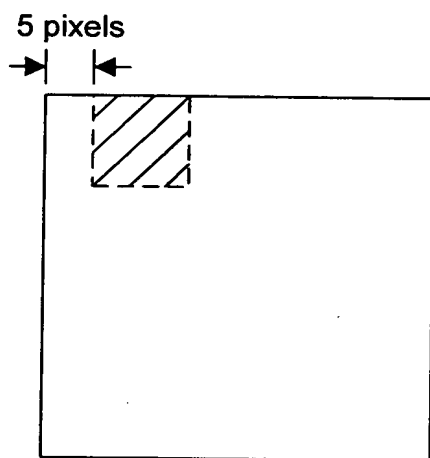


FIG. 18e

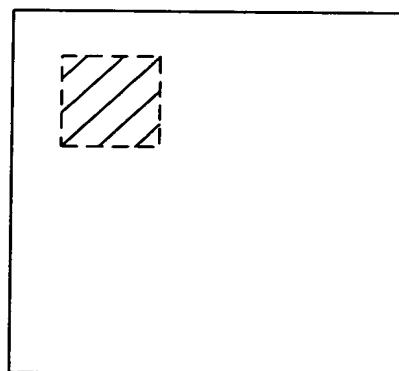


FIG. 18f

004780" T 288960

09638271.081400

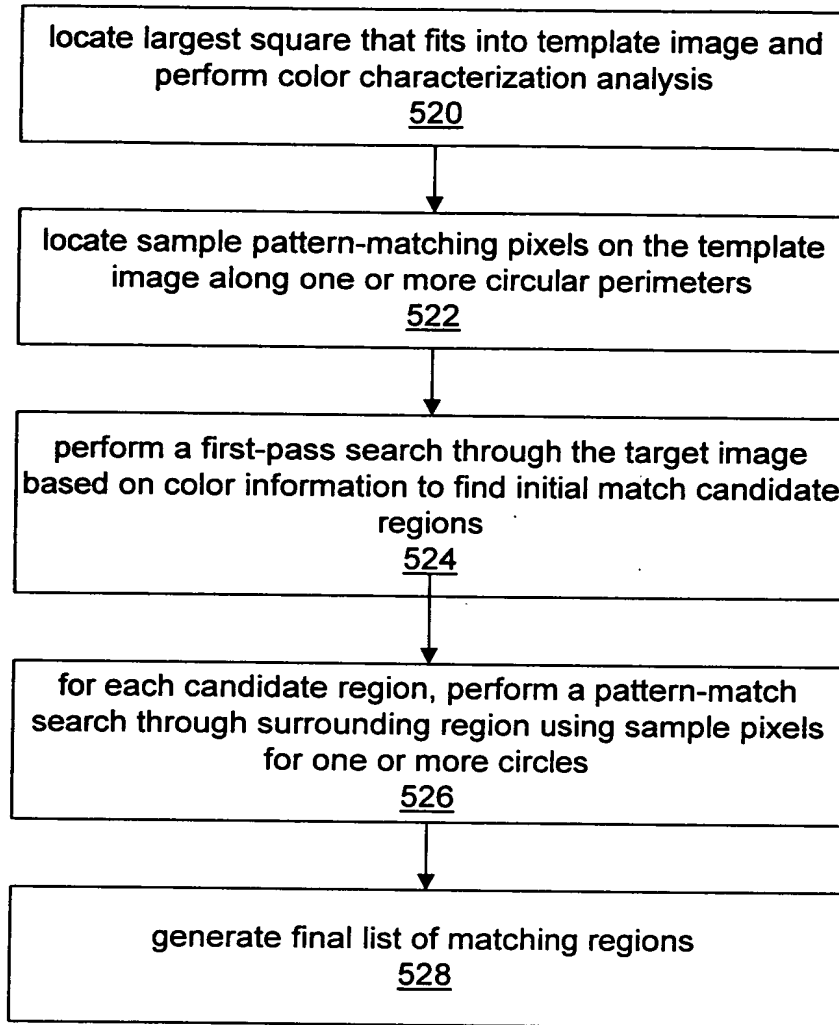


Figure 19

004T80" T28E950

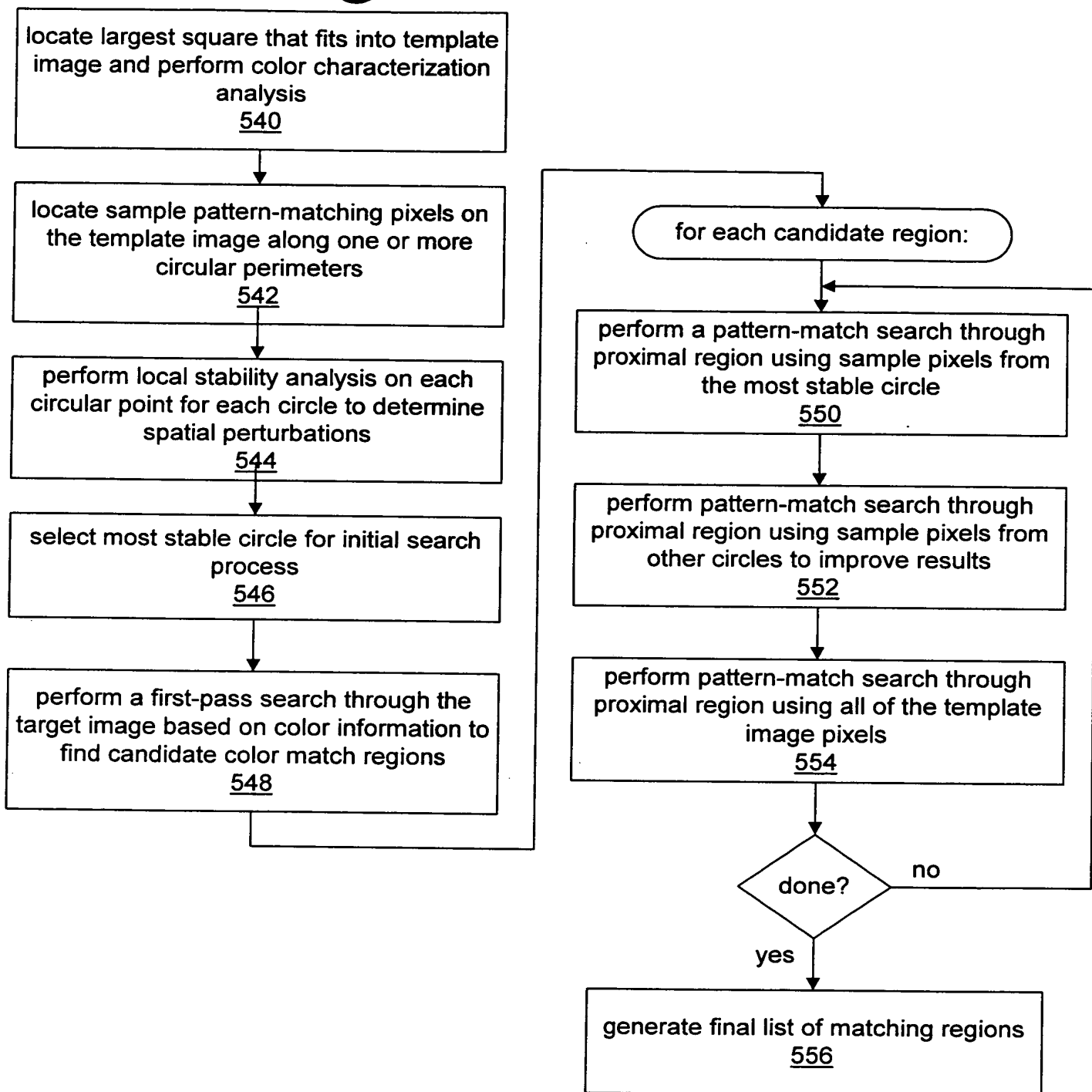


Figure 20

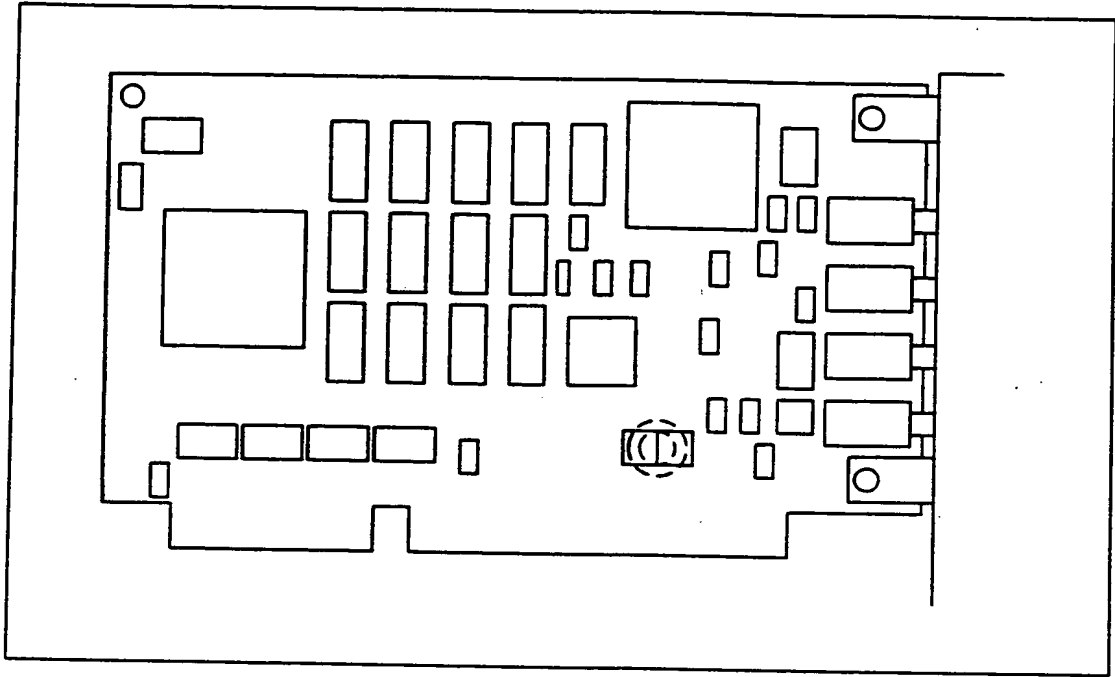


FIG. 14A
21

Template

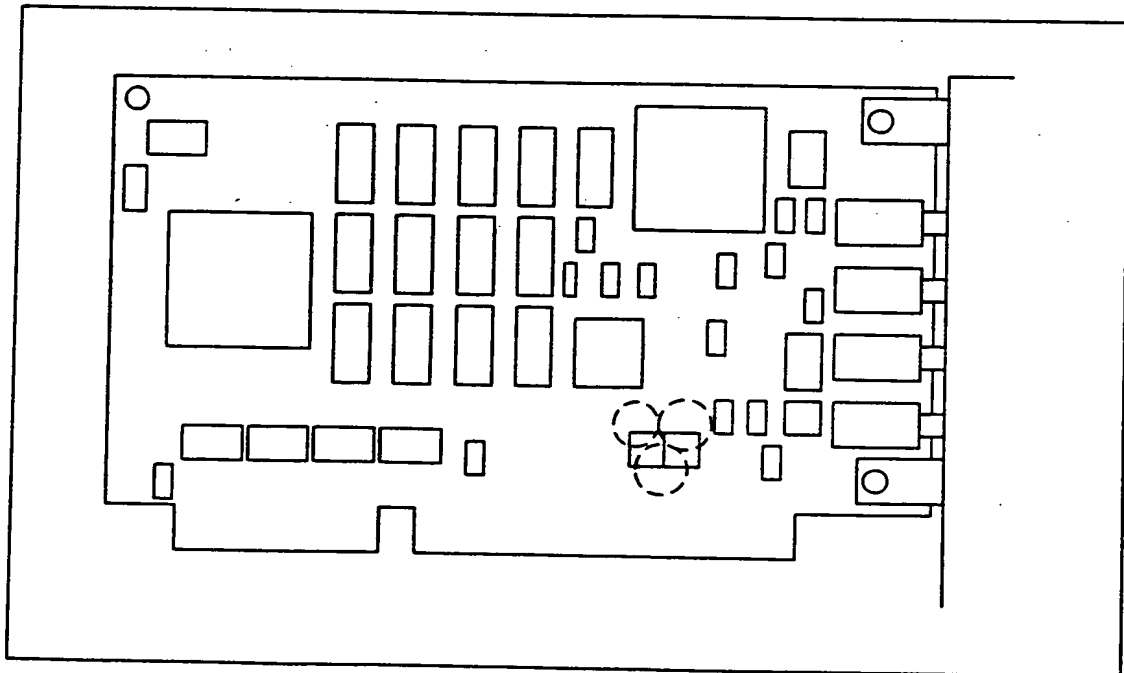


FIG. 14B
21

004T80" T28E360

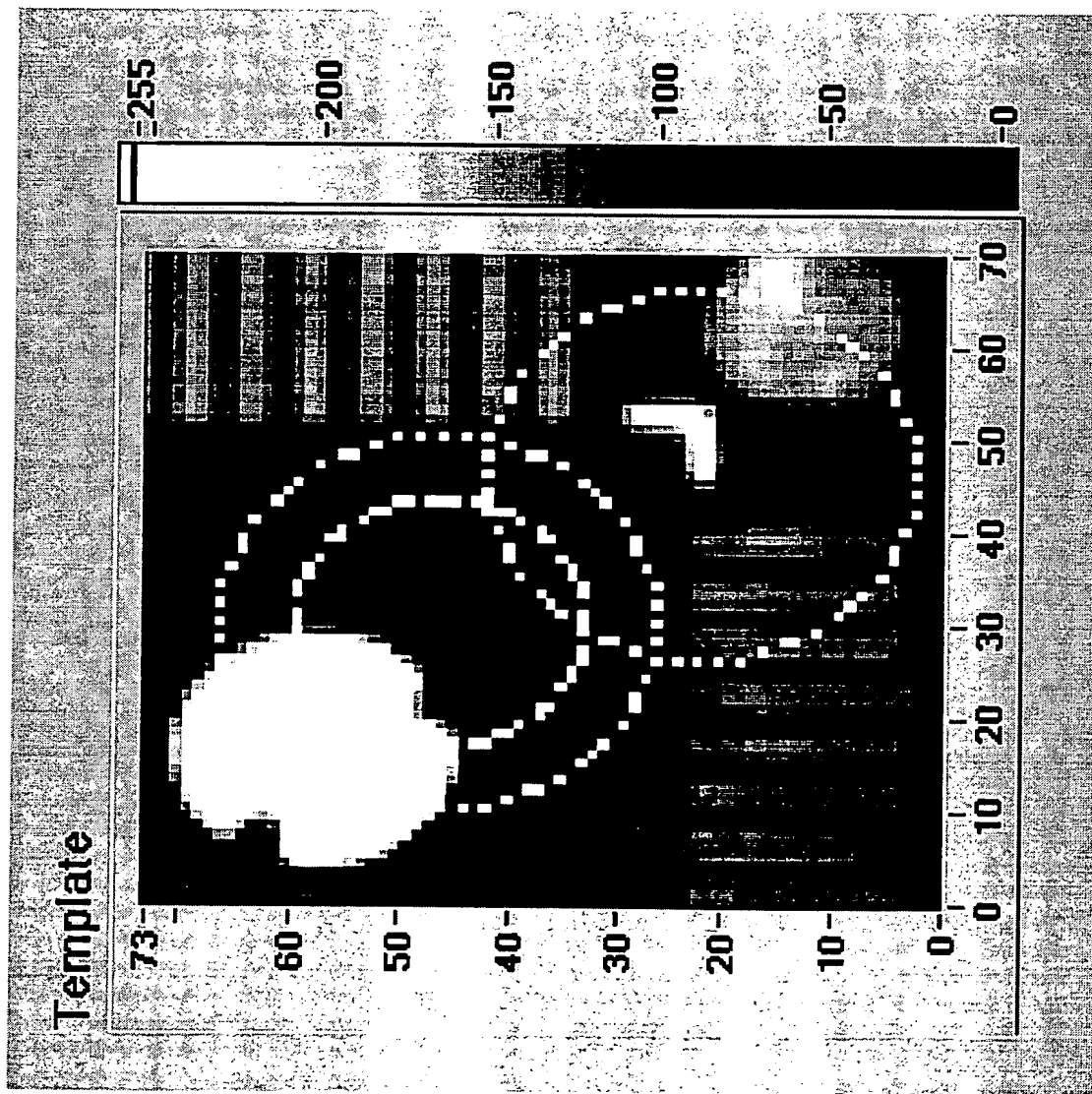


FIG. 22

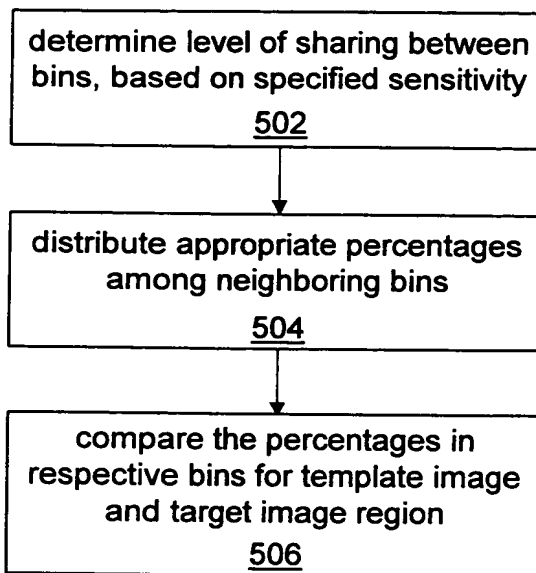


Figure 23

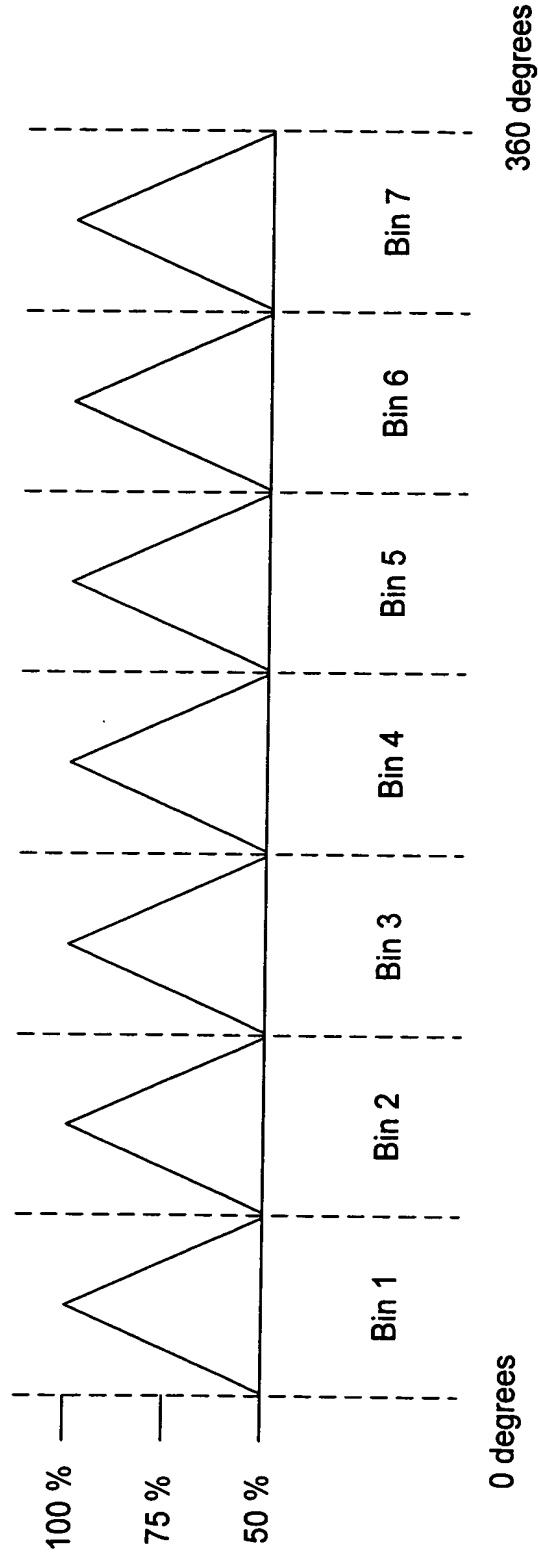


Figure 24

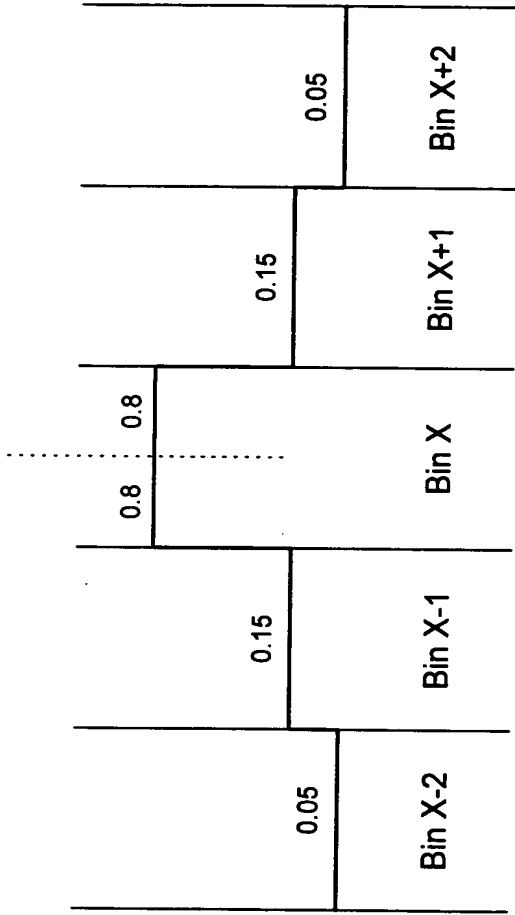


Figure 25

09538271.081400

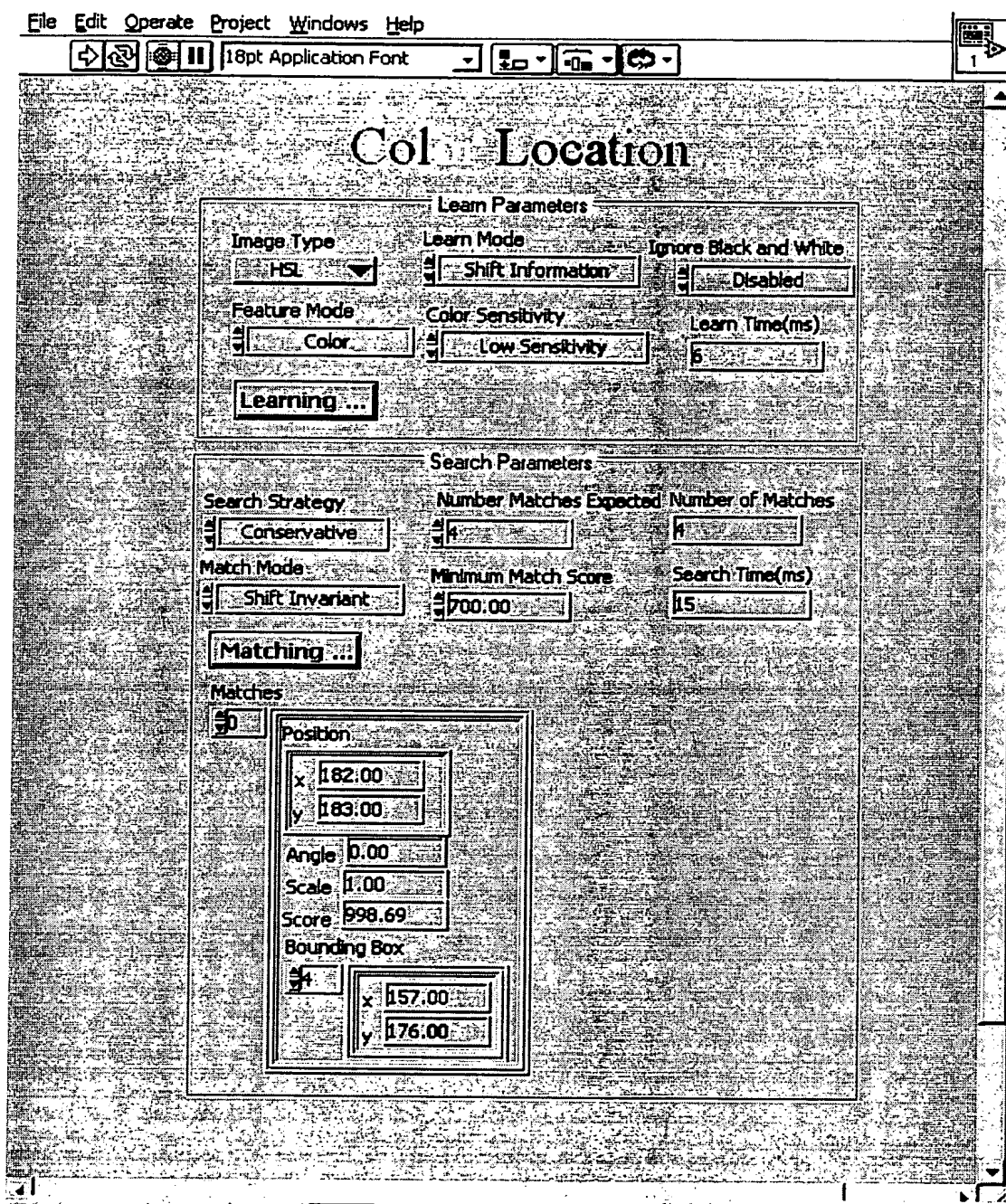


Figure 26

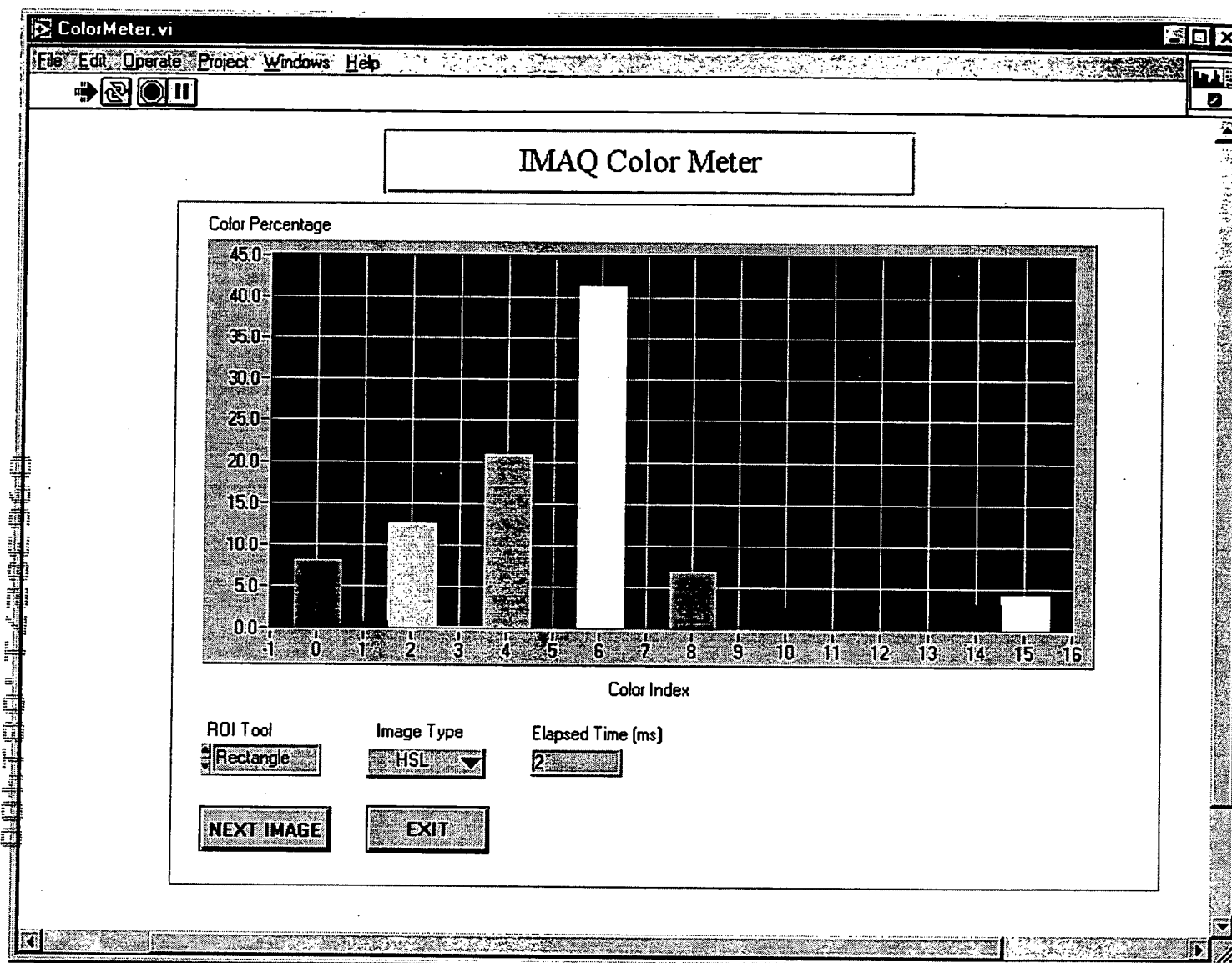


FIG. 27